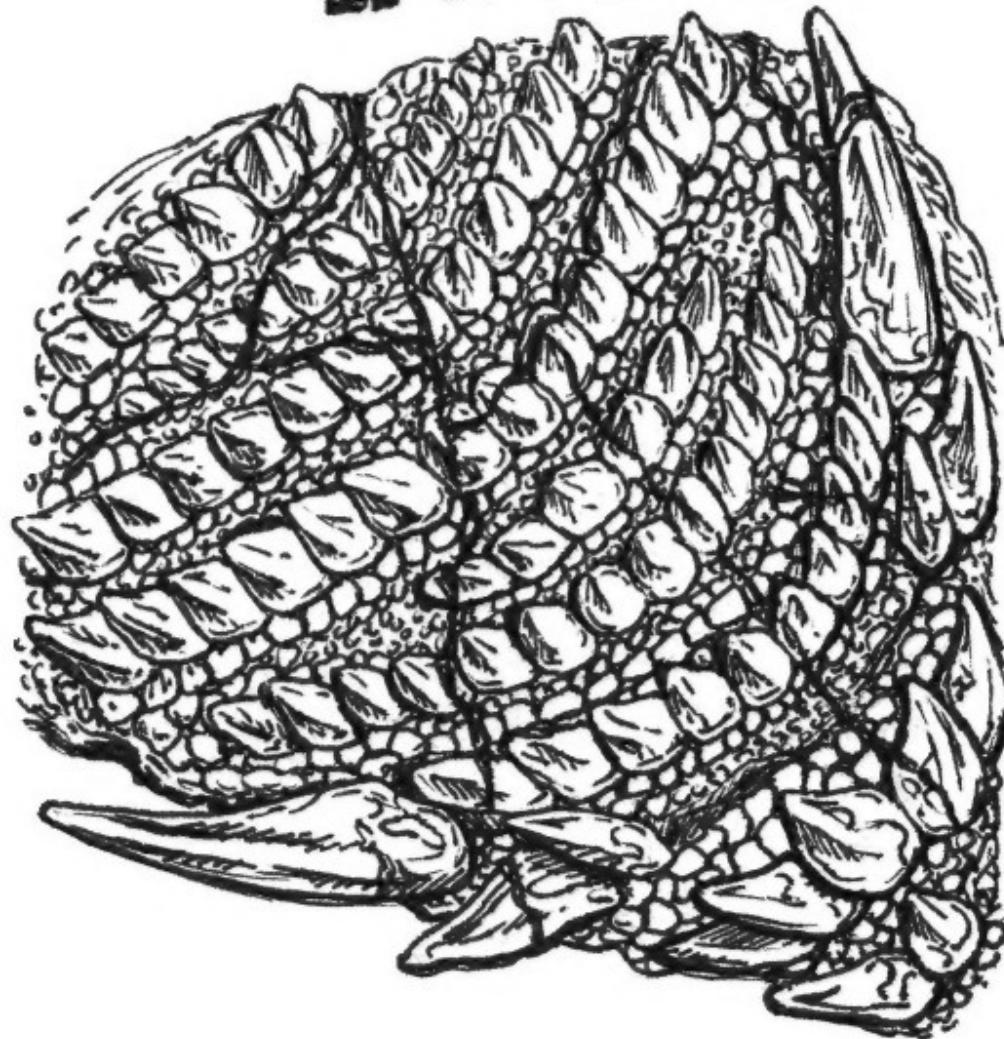


Shield of the North



In 2011 at a mine in Alberta, Canada, shovel operator Shaun Funk noticed an odd rock in the sandstone cliff face.



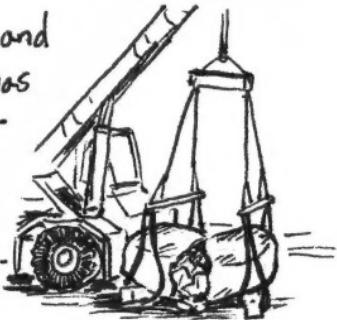
Suspecting they'd found a marine reptile fossil in the Clearwater Formation rock, laid down 110 MYA by an inland sea, a team from the Royal Tyrrell museum of Palaeontology was called in to excavate the massive fossil.

The team, lead by Donald Henderson, was astonished to discover it was an ankylosaur, an armored dinosaur.

It took 2 weeks to isolate the entire fossil and prepare it for transportation.

Wrapped in burlap and plaster, the fossil was strapped and lifted—and immediately crumbled under the weight into two halves and many tiny fragments.

*watch it online, it's terrible + amazing.



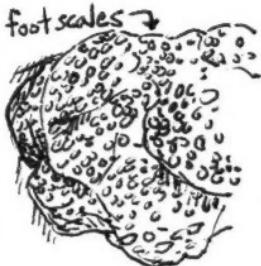
It took 5 and a half years (7000 hours) for Mark Mitchell to prepare the fossil, a painstaking process of removing the surrounding hard matrix from the soft

fossil, made difficult by the extensive soft tissue fossilization.

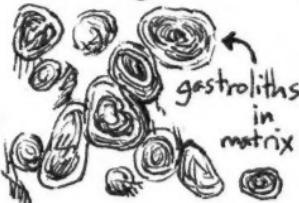


Typically, the osteoderms of ankylosaurs are found loose and naked, but here 186 were in situ, and covered in keratin and skin.

The animal is so well preserved, features such as eyelids, skin, keratin, and stomach contents can be seen as they were in life, with no deformation.



However, the benefits are priceless. An entire front foot is perfectly preserved, skin and all.



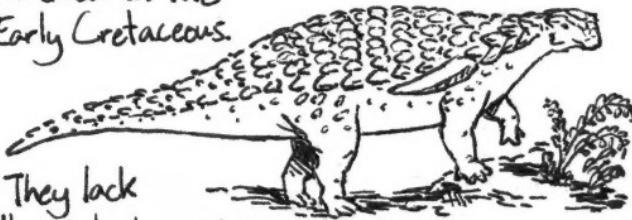
The downside of excellent preservation is that most internal features aren't accessible (only 49% of the skull and 8% of the skeleton). Future scans may reveal more.



Stomach contents include ferns and traces of charcoal.

Excellent keratin preservation helps paleontologists plot growth trends to compare features to other dinosaurs and living animals.

Borealopelta markmitchelli is a nodosaur, a family of dinosaurs in the suborder Ankylosauria, that lived in what is now North America in the Early Cretaceous.



They lack the Ankylosaurs'

famous tail club, but the fossil was identified easily by the nodosaurs' distinctive triangular head, despite the rear third of the fossil being lost to mining.

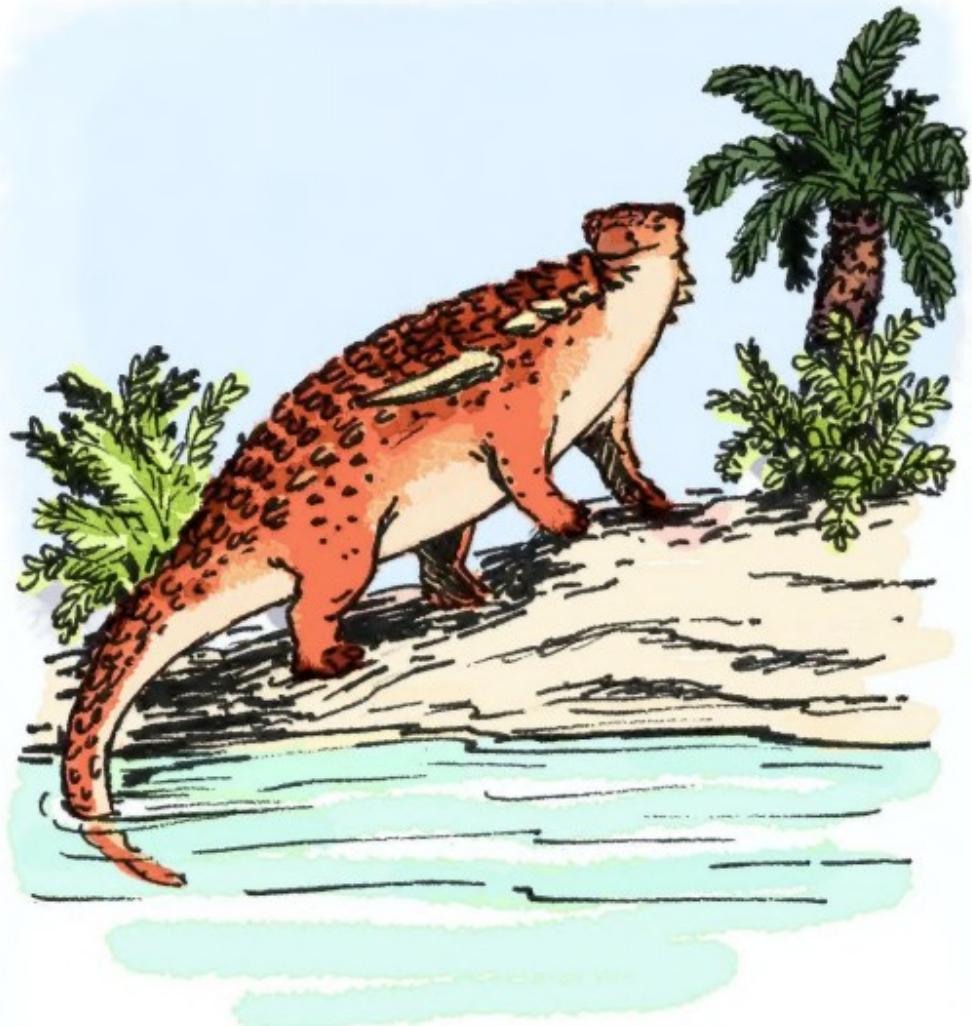


Using mass spectrometry, Borealopelta's color was chemically found to be reddish brown and countershaded, a coloration that helped camouflage it from the gigantic predators of the time.



One mystery that escapes preservation is how this specific animal, a 5.5m, 1.5 ton land herbivore, ended up in the middle of the sea. Perhaps it was the victim of a flash flood that swept it off its feet. But whatever misfortune befell this dinosaur in life has ensured its legacy in death, and gives us a glimpse into the past.





Referenced from material
provided by the Royal Tyrrell
Museum of Palaeontology

shortsplit

May 2021